

KABARAK



UNIVERSITY

UNIVERSITY EXAMINATIONS
2008/2009 ACADEMIC YEAR
FOR THE DEGREE OF BACHELOR OF EDUCATION
SCIENCE

COURSE CODE: COMP 220

COURSE TITLE: OPERATING SYSTEMS

STREAM: SESSION II

DAY: TUESDAY

TIME: 11/08/2009

DATE: 9.00 – 11.00 A.M.

INSTRUCTIONS:

- 1. This question paper has FIVE questions**
- 2. Answer question ONE and any other TWO questions**

PLEASE TURN OVER

QUESTION ONE (30 MARKS) COMPULSORY

- (a) Explain the meaning of the following
 - i. Turnaround time
 - ii. Spooling (4mks)

- (b) Distinguish between the following
 - i. Operating system and utility program
 - ii. Paging and swapping (4mks)

- (c) Describe the following file systems
 - i. FAT16
 - ii. FAT32
 - iii. NTFS (6mks)

(d) Explain what each of the following batch file lines does when executed

```
@echo off
REM batch file to copy a particular file to a specified
directory
REM usage: Store<file_name> <directory_name>
ECHO Creating directory and copying files
md %2
Copy %1 %2
ECHO file copied. (5mks)
```

(e) Suppose processes P, Q and R arrive for processing that order, and given that

Process	Service Time
P	10
Q	4
R	6

- i. Determine the average waiting time (5mks)

- ii. Given that the processes above arrived for processing in the order Q, R and P, determine the new average waiting time. Name and explain this effect (6mks)

QUESTION TWO (20 MARKS) ELECTIVE

- (a) What is PCB? (2mks)
- (b) List six information items that can PCB contains (3mks)

- (c) One of the functions of and operating system is to manage processes. Explain five process activities (5mks)

(d) Describe the **five** main states of a process (10mks)

QUESTION THREE (20 MARKS) ELECTIVE

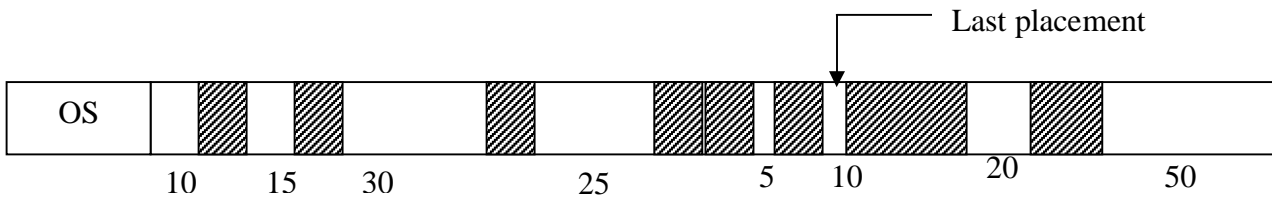
- (a) What is scheduling? (2mks)
- (b) Describe the three types of schedulers and indicate where each occur in a state diagram (9mks)
- (c) Use FCFS, $RR_{q=2}$ and SPN to analyze the following processes

Process	Arrival Time	Service Time
A	0	4
B	1	6
C	3	2

(9mks)

QUESTION FOUR (20 MARKS) ELECTIVE

- (a) Define memory relocatability (2mks)
- (b) Distinguish between
 - i. Static and dynamic memory relocation
 - ii. upper and lower memory (4mks)
- (c) List and explain **four** types of page swapping algorithms (4mks)
- (d) The figure below shows used and free (white) memory blocks at a given allocation time:



Locate the placement of 5mB followed by 20mB requests using the four dynamic placement algorithms if the last placement is the 10mB space as indicated in the diagram (10mks)

QUESTION FIVE (20 MARKS) ELECTIVE

- (a) Distinguish between the following giving an example of each
 - i. Relative path referencing and absolute path referencing
 - ii. External and internal DOS commands (6mks)
- (b) With the aid of a diagram describe hierarchical level 2 directory/file structure (6mks)
- (c) What is logical file organization? (2mks)
- (d) Describe three file organization methods (6mks)